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## Caterpillar and IMS: 40 Years of Partnership

Steve Clanton Senior Technology Specialist



Forty years ago, Caterpillar played a pivotal role in the birth of IMS™. Since its inception over 80 years ago, Caterpillar has grown to be the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines and industrial gas turbines. Caterpillar is also a leading services provider through Caterpillar Financial Services, Caterpillar Remanufacturing Services, Caterpillar Logistics Services, and Progress Rail Services. We are proud to be a leader in building the world's infrastructure, and in enabling progress for millions of people around the globe.

Caterpillar has been an IMS customer for 40 years; we have the unique distinction of being one of the first IMS customers. Caterpillar was involved in the initial design and implementation of IMS.

### Caterpillar's System Environment

As for our IMS systems, we run both IMS DB/DC and DBCTL, with CICS® attaching to all of our systems. All of our systems are configured with DB2® and MQSeries® as subsystems and connected with MSC. We still do a lot of offline DL/I batch processing.

**"You can throw anything at IMS and it can handle it due to the mainframe's processing power."**

Over the years we have been early adopters of APPC, IMS DCE, and IMS Connect. We also use IBM WebSphere® and the MQ-Series Bridge. Each item provided functionality required by the business. Today we are using the Transaction Manager Resource Adapter for IMS Connect through IBM WebSphere Application Server. We use the OTMA Callable Interface and Open Database Access (ODBA) from DB2 stored procedures.

Caterpillar continues to partner with IMS Development as they architect IMS. We are currently in the midst of migration to IMS 10. We are also enabling web services through IMS WebSphere Application Server. We are also pursuing IMS SOAP Gateway to access our distributed data.

### IMS by the numbers

Our use of IMS continues to grow. In January of 1985, Caterpillar had 7800 PSBs, 1900 databases, 13,000 transaction codes, and 10,000 terminal definitions. Fast forward to 2008: our 3 IMS production systems comprise 53,000 PSBs, 8300 databases, 89,000 transaction codes, and 312,000 terminal definitions. We continue to see IMS transactions, usage, and definitions growing. In 1997 we processed 750 million transactions. Last year, 2007, we ran 1.2 billion transactions, and we are ahead of that rate for this

year. A lot of our business runs on IMS. Today, we run manufacturing, purchasing, and financial applications on IMS. IMS provides us with a strong, reliable transaction management system helping to support our business. We have stayed with IMS primarily because of its reliability. IMS is reliable, fast, recoverable, and secure. Another reason that we have stayed with IMS is because of the sheer volume of applications on our systems. We

**"We have stayed with IMS primarily because of its reliability. IMS is reliable, fast, recoverable, and secure."**

are supporting applications in IMS today that were the original IMS applications. It was one of the reasons we partnered with IBM to develop IMS. IMS still fulfills the business need.

### Integrating systems at Caterpillar

In a distributed world, we see the mainframe as a huge server. The mainframe provides the means for taking systems that we have built and using them in a distributed world. Caterpillar is moving more into distributed environments, but one of the things we have to do is to have all of the systems communicate with each other. Everything must be integrated. From a business perspective, this allows us to move forward without disrupting the business. One great example of this is the use of green screens. Caterpillar is still using green screens, but the same transactions that are driving those green screens are now also being driven through the Transaction Manager Resource Adapter without requiring any redesign.

**continued on page 2...**

**IMS Around the World:** look for us this year at:

SHARE, San Jose, August • IBM IOD, Las Vegas, October • IMS Symposium, Bad Soden, Germany, November

# Manage Your IMS / IMSplex with Sysplex Manager

Robert Magid IMS Tools Architect Andrew Nguyen IMS Tools Development

IMS sysplexes present a unique set of challenges. Lock contention, system buffers, system resources, and your workload all need to be managed with care as you strive for ever higher transaction rates. Particularly in the case of shared queues, which greatly improves the availability, scalability, and workload balancing for IMS users, there are challenges when it comes to dealing with transaction affinities. IMS provides some capabilities to help you manage this environment; however users have expressed great interest in having a more full-fledged solution.

The IMS Sysplex Manager addresses this need by enhancing the management and control of IMS data sharing, shared message queues, and the IMS Common Service Layer. Recently announced, Sysplex Manager Version 1.3 contains a major functional enhancement that offers customers greater control of transaction scheduling in the Shared Message Queues environment. The transaction affinity enhancement allows customers to fine-tune transaction scheduling, providing greater flexibility, ease of use, and a reduction in false-scheduling overhead.

## Here are some of the important features that are available through the IMS Sysplex Manager:


- Users can request that IMS route a transaction message to any IMS system in a shared queues group.
- Users can utilize control statements in a PROCLIB member to specify which transactions they want to have affinity. Alternately, affinity definitions can also be a scheduling class.
- Users can assign affinity to:
  - » A single IMS system
  - » A set of IMS systems with equal priority in distribution
  - » A set of IMS systems with skewed priority in distribution
  - » A single IMS system with the provision for the use of one or more other backup IMS systems in the event that the primary IMS system is not available

- » A set of IMS systems with the provision for the use of one or more other backup IMS systems in the event that the primary IMS systems are not available

- After IMS and IMS Sysplex Manager are up and running, users can view affinity definitions and processing options through a user-friendly ISPF interface with just a few keystrokes. You can also view overall system parameters as they relate to IMS Sysplex Manager Affinity processing.

In addition to the sysplex environment, IMS Sysplex Manager also provides many valuable management functions for non-sysplex IMS systems, including both IMS TM and DBCTL environments.


In summary, the IMS Sysplex Manager provides you with an easy-to-use tool to better manage your workload balancing and system performance so that you can have greater flexibility and control over your IMS and IMSplex environment. For more information, see:

[ibm.com/software/data/db2imstools/imstools/imssysplexmgr.html](http://ibm.com/software/data/db2imstools/imstools/imssysplexmgr.html). 

*Caterpillar and IMS continued...*

## “Open” for business

IMS is the “big guy” on the block. It is evolving more and more into the enterprise server, as far as transactions and services, because of the speed and the volumes it can handle. Across the years, I have seen that you can throw anything at IMS, and it can handle it due to the mainframe’s processing power on the System z™ platforms and IMS’s processing power. The original architecture of IMS is what made it so reliable and flexible. IMS could be viewed as an integration focal point as long as there is talent to maintain those systems. If the current testing goes well and the business need is there, Caterpillar will become more “open” from an IMS perspective, so that new programmers coming out of college with the new skill sets can continue to utilize IMS as a transaction manager for those enterprise-size applications that need the processing power and scalability.

The same strengths that have kept IMS viable over the last 40 years will keep it alive and well over the next 40 years, as long as it continues to support emerging technologies. It might not be used for everything (it probably shouldn’t be!), but there are places where IMS has strengths that no one else has. 

# Letter to Customers

Vern Watts IBM Distinguished Engineer Emeritus

IMS celebrates a significant anniversary this year, and to commemorate this important milestone, we asked Vern Watts to share some insights and messages with us. Felt by many to be the “Father of IMS,” Vern suggests that he has been more a “major influencer.” Even though Vern retired four years ago, you can still find him in his corner office here at Silicon Valley Labs, staying close to and influencing IMS development. In this article, he takes us back to the birth of IMS and how it all began...

The creation of IMS was based on the idea of queues. The IBM S/360 was the first main-frame that enabled terminals to act as I/O devices rather than simple output devices. Previously you could only connect 4 terminals to a system, and with great difficulty. It was obvious that terminals needed to be event-driven, not simply wait for input requests. Our aerospace team at Hughes Aircraft created a software design architecture that would enable this vision of event-driven terminals to work, and we partnered with NorthAmerican Aviation (which became NorthAmerican Rockwell) to pursue this design. The design was simple: every transaction type had its own queue. Then we added the scheduling component. IMS’s speed was guaranteed from the start, because application programs did not connect directly to the terminals. Hughes used this software for synchronous satellite efforts, and it then became the foundation for the Apollo Space Capsule project. For Apollo, the challenge was building a system that could manage a massive bill of materials that was required to support the project. At the time, we felt we were just meeting the customer’s requirements but in the end, we managed to develop a system that was so useful and practical, it went on to be what it is today, 40 years later.



Looking back, I’m proud of the architectural and design criteria we established in the beginning—availability, performance and reliability. They are just as important today as they were back then. Also, at the time, run-time efficiency was our only option. In those days, computer resources were scarce and expensive so we had to be extremely efficient with our use of memory, storage and processors. Turns out that that design criteria continues to be as important to customers today as it was back then. It’s hard to believe that customers are running hundreds of millions of transactions per day. With those kinds of workloads, cost per transaction and run-time efficiency is very important. It is another thing I think we got right.


Another goal we had from the beginning was around upward compatibility. It was an unspoken promise to our customers that whatever they built using IMS would continue to work with each new version. In one way, it has made it harder for us, the development team; but more importantly, it was the right thing to do for the customers, protecting their investment in IMS. I think this has contributed to our success as well.

Finally, providing a system that could keep up with our customer’s growth has been a key goal. We have from the beginning always looked for ways to eliminate constraints and remove any barriers to growth such as database size, number of users and number of transactions. Our goal has always been to keep ahead of the curve and provide a solution that would allow our customers to continue to grow their businesses.

If there is anything I would have changed, it would have been our proprietary model which now seems selfish in that it was more for IBM than for the customers at the time. It was very differ-

ent back then—there actually weren’t any other systems to talk to! But since then, we have opened up IMS, making it able to easily interoperate with everything else out there. So overall, I think the whole team is proud of what we started so many years ago and it’s rewarding to see how far IMS has come.



I am often asked whether I thought that IMS would last for 40 years. To be honest, I could never imagine a time when we didn’t need IMS. I saw that what we were doing filled a need, I did not see that need disappearing, and I still don’t. There are always going to be customers who need to run billions of transactions to serve their customers. The job that we do, we do better than anyone else. IMS is here to stay. I don’t see an end in sight. 

“It was an unspoken promise to our customers that whatever they built using IMS would continue to work with each new version.”

# IBM Information On Demand 2008

Amiet Goldman Marketing Manager

Please join us in Las Vegas, Nevada, October 26 through 31, 2008, for the third annual IBM Information On Demand 2008 global conference!

This is the premier information management event for business and IT executives, managers, professionals, DBAs, developers and IBM Business Partners. It's one event you won't want to miss!

The Information On Demand 2008 global conference will offer the most comprehensive educational program to help you unlock the business value of your enterprise information and infrastructure. Participants will be treated to seminars, hands-on labs, and panel discussions from IBM's foremost thinkers and technologists from all across IBM software, hardware and services. The conference will also enable one-on-one meeting opportunities with other IBM leaders, customers, and Business Partners.

## Technical Skill Building 2008

*Program details are subject to change.*

IBM Information On Demand 2008 offers a breadth and depth of technical sessions to help you build skills across a wide array of IBM technologies, learn about all of IBM's new software products and releases, and get behind-the-scenes views of how others are solving their toughest information management challenges with IBM technology.

Our specially designed roadmaps will help you pick and choose topics and skill areas that interest you or fit your job role or industry. Anywhere you go at this conference, IBM's technology leaders provide best practices, tips and tricks, and valuable insider news. Their presentations will be accompanied by discussions by IBM customers on how they met real-world challenges with the use of IBM technology. The Technical Skill Building program offers all the real-life details you need to get IT right when it affects users, system performance, application solutions, IT infrastructure and business processes.

## Sample topics include:

- IMS Enterprise SOA Solutions at Work
- IMS for New Users
- Preparing IMS for the Future...Moving to the Common Service Layer
- IMS SOAP Gateway—A Clean Way to Get to IMS
- SOA, the bigger picture for IMS & mainframe professionals
- Best practices in developing IMS 10 Connect/OTMA Applications for SOA
- IMS Security Basics
- Understanding SOA 2.0 for IMS & mainframe professionals
- Making a successful migration to IMS SOA
- IMS DB SOA enhancements and futures: Don't Get Left Behind
- Solving Problems with IMS Using OMEGAMON® XE for IMS
- And many more!

## Register today and save!

June 1–August 15, 2008 . . . . . \$1995  
(\$200 Savings)

After August 15, 2008 . . . . . \$2195

When you register, you can choose among various roadmaps (available in late summer 2008) to design your personal conference schedule to include any of the sessions offered for your specific industry or job role, the topics that interest you most, or hands-on labs from the Technical Skill Building program.

So don't wait! Register now and get ready to Innovate, Optimize, Perform...and unlock the business value of your information.

## For more information, or to register:

[ibm.com/events/InformationOnDemand](http://ibm.com/events/InformationOnDemand) 

## IMS 40-Year Anniversary Party @ SVL


Maria Querales IMS SOA Initiative



SHARE and IBM are jointly sponsoring a visit to IBM's Silicon Valley Laboratory (SVL) on Thursday, August 14.

You are invited to participate! SVL is the prestigious home of IMS, DB2, DFSMS™, PL/I, COBOL, Content Manager, Rational®, and other IBM software products. At the lab, you will have an opportunity to tour the facilities, meet with product engineers, enjoy light refreshments, and see where software technology thrives. You'll also have an opportunity to help celebrate major 2008 anniversaries for IMS (40 years), DB2 (25 years), and DFSMS (20 years).

If you are attending the 2008 Summer SHARE Technology Exchange in San Jose, complementary bus transportation will be provided from the San Jose Convention Center to the IBM SVL site. To participate, you must have a SHARE San Jose badge and a bus ticket. While supplies last, bus tickets will be available from IMS, DB2, and DFSMS project representatives during Sunday night's "Meet the Projects" event as well as at any of the IMS, DB2, and DFSMS sessions during the conference. Tickets will also be available at the IBM Booth in the Technology Exchange.

Don't miss this opportunity to visit one of IBM's award-winning product development sites! For details, contact Charity Rugege at [rugegec@us.ibm.com](mailto:rugegec@us.ibm.com). 

In this edition of IMS Profiles, we'd like to introduce you to several IMS individuals, past and present, who made working on IMS a family thing!



Vern and Steve Watts

### Vern Watts and Steve Watts

Vern Watts, IBM Distinguished Engineer Emeritus and original architect of IMS (see page 3 for details) persuaded his nephew, Steve Watts, to join IMS as an intern. "Vern got me a summer job working in DL/I," Steve said. He found the experience rewarding, and when he was offered a full-time position, he accepted. "I worked on active PSB copy and Changed Data Capture in the DL/I department," Steve said. "I was there for about 5 years." Steve is still with IBM, in the Workplace, Portal and Lotus Collaboration Software group. When asked what he thinks of future of IMS holds, he said "I think that IMS has a bright future ahead of it...it was the first database and it's still going strong."

### Deborah Massarat and Arianna Massarat



Deborah and Arianna Massarat


Deborah Massarat spent 9 years in the IMS Organization, managing build and integration, Fast Path, Service, and Development. "IMS is a close-knit community of development professionals, and overall, a great place to work." When Arianna was ready for an internship, Deborah told her that IMS powered the world with its technology, and that there were many growth opportunities available. Arianna said, "I saw the opportunities that were provided to my Mom; from great friendships to career growth. As IMS encompasses so many key areas in both business and software technologies, I was interested in being part of the big picture and getting a well-rounded experience." Arianna worked in IMS Planning and Field Support, in IMS Test, and for IMS user-centered design. They have both moved on to new opportunities at IBM, but wanted to say, "IMS has been around for 40 years, and it is still growing! What an accomplishment. There is no doubt with such a great group of folks behind the product that it will be successful for many years to come. Happy Birthday, IMS!"

### Judy Silva and Jerry Silva



Jerry and Judy Silva

Judy Silva spent 26 years in the IMS Service organization, supporting IMS customers. Although she retired 4 years ago, she is still helping IMS customers as a contractor. When her son Jerry asked her about working for IMS, she says "I told him that he would be working with a group of people who are very proud of the product they own and support." She added that he "would find each part of the IMS organization wanting him to be successful." Jerry joined IBM 10 years ago, and 2 years ago joined the IMS Level 2 Technical Support team. Since joining the team, Jerry says, "I can certainly see the 'family-like' atmosphere that was so often used by others in describing the team that I was preparing to join. I am also honored to part of a team whose pride and dedication is so very prevalent through the service and support that they provide on a daily basis." Judy adds that "IMS also has the best customers, and it is a privilege to work with them."

With two young daughters, Jerry muses, "maybe I will have the pleasure one day of recognizing another IBM generation within my family. 

# IMS Regional User Groups

Sandy Sherrill IMS Marketing

Are you a member of an IMS regional user group? Would you be interested in establishing an IMS regional user group in your geographic area? Read on for more details on existing IMS regional user groups, and what you can do to establish one in your area.

## Why you should consider joining an IMS user group

There are many reasons to participate in an IMS user group. You can:

- Share your IMS experiences with other IMS users
- Build professional and technical contacts
- Share best practices
- Learn tips and tricks from other IMS users
- Develop an awareness of issues being faced by other IMS customers

Traditionally, user groups are organized and led by the IMS users themselves. You can craft a user group to meet your specific needs—you're in the driver's seat! Regional user groups mean that no travel, or a minimum amount of travel, is required. You can arrange to meet at your company's site, at a local coffee house, it's your choice.

What role does IBM play? We want to help you be successful! We will come to your preferred location and provide subject matter experts and materials to help conduct your user group sessions. If you cannot obtain space, we can arrange to conduct your user group meeting at an IBM facility.

### Guide Share Europe—Spain

Recently, the Guide Share Europe (GSE) Spain user group hosted an event. The Spain GSE user group membership includes representatives from the financial, retail, transportation, and software provider industries. They meet quarterly to educate one another, share and resolve issues, and develop a working relationship with IMS development. GSE welcomed several IMS experts from Silicon Valley Laboratory, who presented to the GSE attendees topics on IMS and SOA, IMS Trends and Directions,



GSE Spain User Group with members of IMS Development

and a glimpse of things to come. The Spain GSE chair, Juan Valverde, is an IMS professional working for El Corte Inglés, which operates Spain's leading chain of department stores and Hipercor hypermarkets. El Corte Inglés also offers financial and travel services, insurance, online shopping, retail consulting, and telecommunications services.

### Currently, the following geographic areas host IMS user groups:

Dallas/Fort Worth, Texas, United States

[www.dfwims.org](http://www.dfwims.org)

New York, New York, United States

[tridexdb2.natemurphy.net](http://tridexdb2.natemurphy.net)

Madrid and Barcelona, Spain

[gse.sp.gse.org/index.htm](http://gse.sp.gse.org/index.htm)

Chicago, Illinois, United States

[www.mwdug.org](http://www.mwdug.org)

Refer to the website listed to see when the next IMS regional user group meeting will be held in these cities.

### September and October of 2008 will be exciting months—we will be hosting new IMS regional user groups in the following cities:


Los Angeles, California, United States  
September 16, 2008

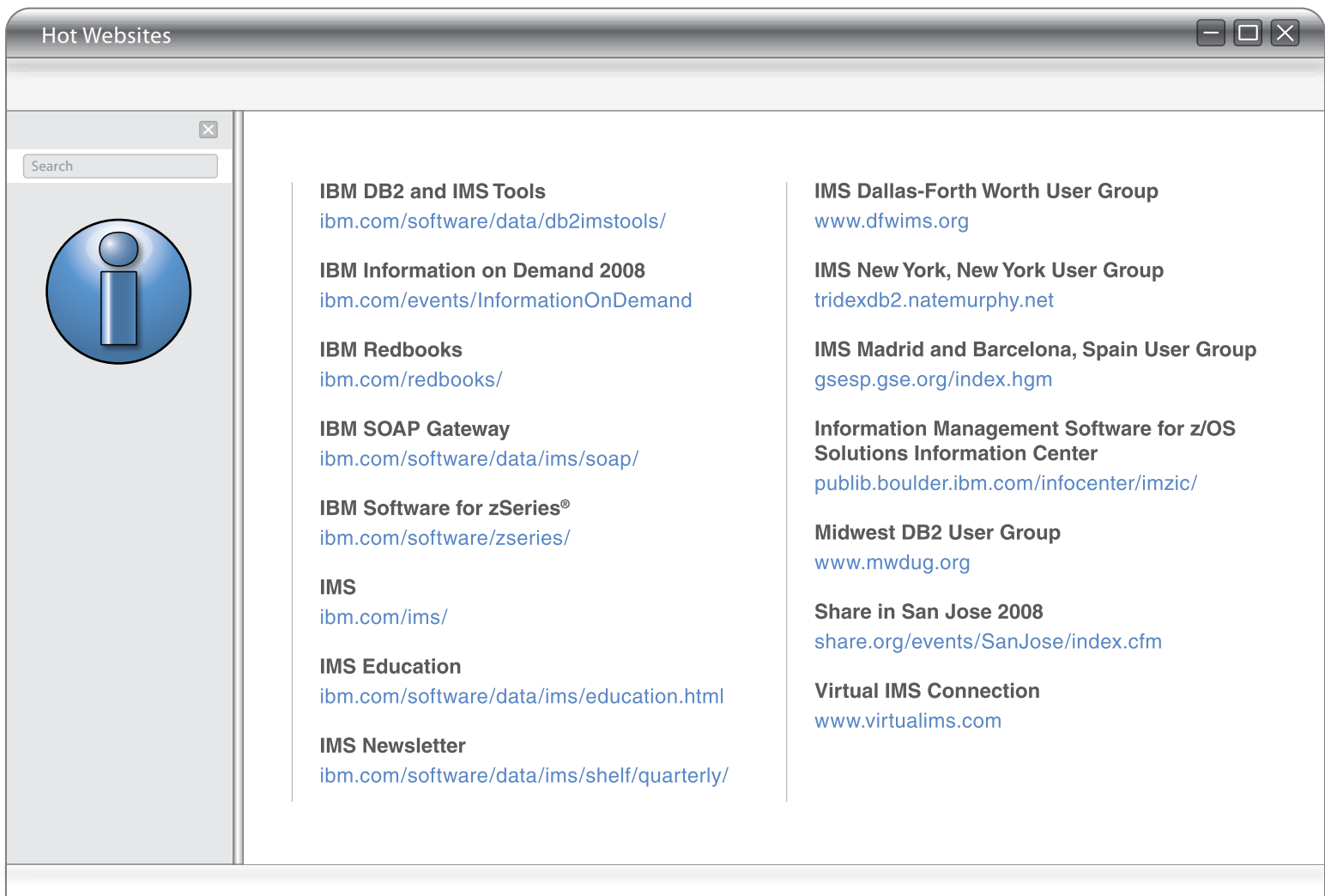
Phoenix, Arizona, United States  
September 18, 2008

Columbus, Ohio, United States  
September 23, 2008

Detroit, Michigan, United States  
September 25, 2008

Toronto, Ontario, Canada  
October 14, 2008

If you are close by, please plan to join us! For more information about attending one of these IMS regional user group meetings, or about establishing one in your area, please contact Maria Querales, [querales@us.ibm.com](mailto:querales@us.ibm.com) 



The screenshot shows a web browser window with the title "Hot Websites". On the left side, there is a search bar and a large blue circular icon with a white lowercase letter 'i'. The main content area is divided into two columns of links, each preceded by a bold heading. The left column lists: IBM DB2 and IMS Tools (ibm.com/software/data/db2imstools/), IBM Information on Demand 2008 (ibm.com/events/InformationOnDemand), IBM Redbooks (ibm.com/redbooks/), IBM SOAP Gateway (ibm.com/software/data/ims/soap/), IBM Software for zSeries® (ibm.com/software/zseries/), IMS (ibm.com/ims/), IMS Education (ibm.com/software/data/ims/education.html), and IMS Newsletter (ibm.com/software/data/ims/shelf/quarterly/). The right column lists: IMS Dallas-Forth Worth User Group (www.dfwims.org), IMS New York, New York User Group (tridexdb2.natemurphy.net), IMS Madrid and Barcelona, Spain User Group (gseesp.gse.org/index.hgm), Information Management Software for z/OS Solutions Information Center (publib.boulder.ibm.com/infocenter/imzic/), Midwest DB2 User Group (www.mwdug.org), Share in San Jose 2008 (share.org/events/SanJose/index.cfm), and Virtual IMS Connection (www.virtualims.com).

## Farewell BookManager®

**Moira McFadden** IMS Information Architect

We hope that by now you're aware of and using the Information Management Software for z/OS Solutions information center, which contains not only IMS and IMS SOA Integration Suite documentation, but also DB2, IMS Tools, and DB2 Tools documentation.

IBM's information strategy focuses on optimizing product documentation for delivery in such Eclipse-based (Web) information centers. Because of this shift in focus, IMS Version 10 is the last version of IMS product documentation that will be available in BookManager format. If you need to view IMS documentation but don't have Internet access, we have some good news: we will continue to provide PDF versions of our documentation (PDFs are included in the information center) and we're developing a locally installable version of the information center. Watch this space!

# IMS Newsletter

## Volume 0801

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## Editorial

Sandy Sherrill

### Then and Now: 1968 and 2008

40 years hardly seems like a significant length of time when you consider the overall age of this universe (the oldest stars in The Milky Way are 13.2 billion years old). In 1968, the world's population was 3.556 billion individuals. The cost of a first-class stamp in the United States was \$0.05. The price of gas was around \$0.27 per gallon. Mexico City hosted the Summer Olympics, and Norway captured the most gold medals at the Winter Olympics, hosted in Grenoble, France. Yasunari Kawabata of Japan won the Nobel Prize for Literature. And the successful flight of Apollo 8 saw the first astronauts orbit the moon. After the goal of orbiting the moon was accomplished, the next obvious goal would be to put a man on the moon. Just one year later, in 1969, IBM computers and personnel helped NASA to put the first men on the moon. One of the key elements of this astonishing success?

### IMS

In the 40 years since those transformative events took place, tremendous changes have taken place. Technology and its ever-accelerating pace now impact not only NASA shuttles to the International Space Station, but most of the gadgets that we use in our everyday lives. We've learned to rely on technology. It helps us get things done faster, with much greater efficiency.

You could say the same about IMS. In the 40 years since its birth, the strengths of IMS—its speed, reliability, and efficiency—are only getting better (so says Caterpillar on our cover). We are proud of the product we have built, but we are even prouder of its role in the world's economic and business infrastructure—thanks to you, our customers!

Please join us in wishing IMS Happy Birthday...Cumpleaños Feliz...Bon anniversaire...Glücklicher Geburtstag... Aniversário Feliz...誕生日おめでとう...Hyvää syntymäpäivää...生日快乐...Grattis på födelsedagen!

Sandy Sherrill

Editor-in-Chief

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